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ABSTRACT

Intended for teachers in office education programs and those working with coordinated vocational-academic education programs, this material provides information for adapting the regular classroom, equipment, and curriculum to meet the particular needs of students with special needs. An introduction briefly describes the three major laws influencing vocational education for handicapped persons. The next four chapters are devoted to ways for providing instruction to students with four types of handicapping conditions: hearing impaired, mentally retarded, physically impaired, and visually handicapped. Each chapter offers a definition of the handicapping condition, a discussion of student abilities and needs, and a collection of teaching techniques and strategies relating to adaptation of physical facilities, setting of goals, adaptation of the curriculum, specialized materials and equipment, teaching methods, and modification of testing and evaluation processes. An example of how a unit of instruction may be adapted for the special needs of the students is also included. (No example is provided for the physically handicapped.) Appendixes include a reading level formula; listings of resource materials, resource organizations, articles, and special equipment and tools with their purpose and source; and information on project IMPART. (YLB)

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Special Needs Adaptations for Office Education Teachers

compiled by Elaine Burrow
with the assistance of Pam Hill

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FOREWORD

The following material was compiled under contract with Texas Education Agency to provide teachers in Office Education programs, and those who are working with Coordinated Vocational-Academic Education programs, with information they will need in adapting the regular classroom, equipment, and curriculum to meet the particular needs of students with special needs.

This package contains a collection of suggestions that relate to (1) adapting equipment, (2) providing motivational devices, (3) listing special methods of instruction, and (4) modifying testing and evaluation processes for students with special needs.

Also included are examples of how a unit of instruction may be adapted for each type of special need a student might have, with the exception of the physically handicapped. This student will have such varied needs that it is impossible to list a specific example. The examples are intended to be just that--examples, and each teacher will need to individualize the instructional program since all students are different. The classroom setting will determine what can be done.

Elaine Burrow, curriculum specialist in Office Education, was assisted by Pam Hill, whose expertise is in the field of special education, in preparing this package. The material will be provided free of charge to those teachers who attend the summer in-service workshop for office education teachers. Training sessions at the workshop will provide direction in how the material can be utilized in the classroom.

Copies of this material can be obtained upon request by those who did not receive the material at the summer workshop.

Bill Barnes, Ph.D., Director
Occupational Curriculum Laboratory

INTRODUCTION

Vocational instructors are attempting to prepare their students for the world of work--and that isn't always easy.

Add to that assignment the mandate to mainstream the student with special needs, and the prospect often becomes downright frightening.

Two of the most common concerns vocational instructors express are these: (1) the feeling that they lack the background and training they need in working with the handicapped student, and (2) the fear that they will not have enough time to devote to the special needs student without neglecting the other members of the class.

The material presented in this publication is designed to help alleviate those fears by showing the teacher how to develop methods of instruction to be used in adapting materials and equipment used by office education and CVAE teachers whose classes include the special needs student.

In Texas, one of the priority assignments given the Associate Commissioner for Vocational Education is to strengthen the coordination between their separate areas, and to provide the necessary leadership to achieve such coordination at the local level.

Therefore, it is evident that the vocational teacher is not expected to handle this teaching assignment alone, and that should make the prospect less threatening. Realizing that the areas of responsibility are to be jointly shared provides needed assurance.

Federal legislation passed to insure the rights of handicapped students pertains to civil rights in education, vocational preparation, and in job placement and promotion. A basic understanding of these laws is beneficial to the vocational education instructor in these ways:

1. To communicate with others concerning the laws.
2. To understand the legal obligations and rights provided for by those laws.
3. To design programs that meet the requirements of the laws.

In this introduction, only a brief overview of the three major laws influencing vocational education for the handicapped is given. For a more detailed explanation, a teacher may find copies of these laws printed in the Code of Federal Regulations, or in the Federal Register. These also may be obtained upon request from Senators or U. S. Representatives, or at a local library.

Public Law 94-482--the Vocational Education Amendments of 1976, provides for and addresses the special needs of handicapped students. Under this law, at least 10 percent of the allotment provided under Section 102(a) must be spent for vocational education of the handicapped. These funds shall be used to the maximum extent possible to assist handicapped persons to participate in regular vocational education programs. This law also encourages vocational education, special education, and vocational rehabilitation personnel to work together to provide the best possible education for the handicapped.

Public Law 93-112--The Rehabilitation Act of 1973, guarantees the rights of the handicapped. Under this law, any program or activity receiving federal assistance may not discriminate against any qualified person on the basis of mental or physical handicaps. The law also requires that the educational needs of the handicapped be insured by providing for the following:

1. The least restrictive environment, which includes classroom and facilities used.
2. Placement decisions about the best setting, made by professionals, based on several sources of information.
3. Aptitude and achievement tests, teacher recommendations, and the student's physical condition be evaluated along with information on social background and adaptive behavior to determine placement. Testing procedures which discriminate against a particular type of handicap, or handicapped persons in general, may not be used.

Under this law, vocational education classes may not limit the number of qualified handicapped students accepted.

Public Law 94-142--the Education of all Handicapped Children, states as its purpose ". . . To assure that all handicapped children have available to them a free, appropriate public education which emphasizes special education and related services designed to meet their unique needs, to assure that the rights of handicapped children and their parents are protected, to assist states and localities to provide for education of all handicapped children, and to assess and assure the effectiveness of efforts to educate handicapped children."

This act also requires that an Individualized Education Program (IEP) be prepared for each student in order to design the best educational plan with the student's specific abilities, interests, and goals in mind. The act also states that handicapped individuals receive their education in the least restrictive environment. The law requires that handicapped students be educated with children who are not handicapped. The only exception is if the degree or nature of the child's handicap inhibits participation in the regular classroom setting.

The law provides the basis for some major changes in providing equal educational opportunities for handicapped students, and the responsibility for compliance rests with local, state, and federal government agencies. The allotment of federal money for programs will depend on the proof of compliance given by each state and local government. As these laws are interpreted and implemented at the local level, teachers will begin to share in the responsibility of adherence to the regulations. By developing an understanding of the laws and their implications, the teacher can more effectively comply. The end result is that final responsibility for achieving the purpose for which the laws were developed rests on each teacher of a handicapped student.

Since these laws make it necessary to provide training in the regular classroom to the maximum extent possible, modifications of instructional equipment, instructional methods, and physical surroundings must be made, and the local school district is charged with the responsibility of providing what is required.

The vocational instructor can, and must, call on all available resources to make the program easier to implement. Reinforcement is provided through a recent communique from W. N. Kirby, Deputy Commissioner for Finance and Program Administration with Texas Education Agency. The information from that office follows:

Coordination Between Special Education and Vocational Education in Provision of Vocational Instruction to Handicapped Students

The following responsibilities in the provision of vocational instruction for handicapped students are being identified for both vocational education and special education. These responsibilities have been identified in accordance with the Rehabilitation Act of 1973--P.L. 93-112 (Section 504), the Education of All Handicapped Children Act--P.L. 94-142, the Vocational Education Act of 1976--P.L. 94-482, and the Office of Civil Rights Vocational Education Guidelines (March 21, 1979).

Special education responsibilities for vocational instruction of handicapped students are:

- Referring handicapped students who have the functional skills necessary to succeed in vocational education. This may include providing a rating scale to indicate quantifiable elements related to attitudes, work habits, job readiness, and acceptable behaviors.
- Providing handicapped students who are being considered for vocational education appropriate vocational assessment data that is directly relevant to vocational program offerings and employment opportunities available in the community.
- Scheduling ARD Committee meetings to accommodate all designated committee members including the schedules of vocational teachers and the parents. The ARD Committee must consider the need for students to enter vocational programs prior to the beginning of the school year since these programs are taught in a sequence with safety practices and other fundamentals being taught at the beginning of the year rather than at mid-year.
- Providing support services, instructional equipment, and special education instructional personnel, as necessary, to assist handicapped students in vocational programs. This assistance may take the form of team teaching, resource room assistance in studying and taking tests, and/or assisting the vocational teacher in adapting and modifying curriculum.
- Placing identified handicapped students in on-the-job training stations after they have completed occupationally specific vocational training. The on-the-job training should be in an occupation related to the training acquired.

  Providing prevocational training for severely handicapped students whose career/occupational needs can better be served by special education personnel.

Vocational education has the responsibility for:

- Assuring that vocational programs available in the district are accessible to all students including the handicapped.
- Providing vocational personnel with the opportunities to gain the necessary knowledge and skills for working with handicapped students.

- Providing information from vocational teachers indicating the minimum skills that are needed for entry into the vocational programs. These prevocational (entry-level) skills should then be taught by special education personnel prior to vocational placement. Handicapped students may attain competency for entry-level employability in only a limited number of tasks which were included in a modified vocational curriculum.
- Ensuring staff time for vocational education personnel to participate in the ARD Committee meeting for handicapped students for whom vocational education is a possible instructional placement. The scheduling of the meeting should be coordinated with both special education and vocational education personnel to identify a time for all to be present.
- Modifying instructional equipment or the curriculum for individual handicapped students (modified program goals).
- First using federal set-aside funds to support the excess costs incurred by handicapped students in vocational programs. Some of the appropriate expenditures of these funds are equipment modifications, instructional aids and materials, teacher aides, and other services needed by handicapped students to participate in vocational education. If additional funds are needed, supplemental funds from special education may be requested.

The vocational assessment process is comprehensive and must be conducted over a period of time. Proper assessment involves a number of persons whose purpose it is to identify the individual characteristics, education, training, and placement needs in order to provide the school with a basis for planning a student's individual program, and to identify that student's vocational potential.

Because all of the elements involved in working with the special needs student must be considered, the limits of the space in this material prohibit listing everything in depth. However, for the most complete information about conducting vocational assessment in the classroom, preparing for and participating in an ARD Committee meeting, and other matters related to vocational assessment and individualized educational planning, it is suggested that the vocational teacher obtain a copy of the implementation manual published by the Occupational Curriculum Laboratory at East Texas State University, Commerce, TX 75428. This manual, VOCATIONAL ASSESSMENT OF STUDENTS WITH SPECIAL NEEDS, provides information in one publication that will be invaluable. This manual also will give the teacher access to many of the details involved in student assessment that can be of use in dealing with the student in the classsroom.

The following chapters are devoted to ways in which to provide instruction to students with various types of handicapping conditions.

THE HEARING IMPAIRED STUDENT

DEFINITION

A hearing impairment is often called the "invisible handicap" because usually there are no outward physical signs of this disability. Persons with a hearing loss can be generally grouped into two categories: (1) the deaf, whose sense of hearing is no longer functional; and (2) the hard-of-hearing, whose sense of hearing is limited.

The two categories can further be defined as follows:

- Deaf persons cannot hear or understand the spoken word. They may respond to loud noises or vibrations, but usually are unable to understand speech sounds without visual clues.

- Hard-of-hearing individuals have some ability to hear and understand the spoken word. Although some words are audible does not mean that they are clear. Sounds are not necessarily just softer to a hard-of-hearing individual; words may sound garbled or distorted, making it difficult for the person to understand a verbal message.

To a teacher of the hearing impaired, it will be important to know the degree or range of the hearing loss, the age at which the loss was incurred, and whether the loss was hereditary or was caused by an accident or illness because these facts will help determine the best method of teaching the student. Figure I on page 15 illustrates the varying degrees of hearing loss, the effects of the hearing loss, and some of the educational needs of these students.

Knowing the age at which hearing loss occurred will indicate the speech or communication level, and the different speech patterns of deaf students. The person who has been deaf since birth, or before speech was learned, may have no speech or may have a mechanical, monotomous, or unusually high-pitched voice. The student with a hearing impairment which occurred after age five probably will have speech that is more highly developed but may use other methods to communicate.

It also is important for the teacher of the hearing impaired to know what caused the hearing loss since that also will have some bearing on how the student will be taught. A person who is born deaf usually will have no impairment of intellectual functioning. However, a person whose hearing loss resulted from an injury or illness may have other complications that may affect memory, orientation, intellectual functions, or judgment which, along with the hearing loss, could further hinder learning potential.

STUDENT ABILITIES AND NEEDS

The hearing impaired student's greatest handicap may not necessarily be the hearing problem, but, instead, the subsequent speech deficits associated with hearing loss. The degree of severity of the speech deficit will be highly correlated to the degree of severity of the hearing impairment, and this will be reflected in how well the student does in school.

1. ACADEMIC SKILLS--Depending on the severity of the handicap, the hearing impaired student will more than likely be defic't in these four language areas:

   - o Vocabulary--limited
   - o Language patterns--distorted or low-level
   - o Thinking skills--lack of sophistication
   - o Reading ability--with difficulties

   More than likely, the hearing impaired student will have a lower grade reading level than normal for age.

2. SOCIAL SKILLS--Due to lack of experience in social interaction, hearing impaired students may lack age-appropriate social skills. The hearing impaired with speech difficulties may avoid social situations that require speaking; and when asked to speak may either seek ways to avoid it, or may concentrate more on how to say something than on what to say.

   Hearing impaired students often use their other senses (such as sight) to pick up the meaning of a conversation by watching the face of the speaker. They often rely heavily on lipreading and therefore may interpret what is said in a literal sense, thus missing the true meaning of a conversation that may have been conveyed by tone, inflections, pitch, or volume of voice.

3. COMMUNICATION SKILLS--Depending on the severity of the hearing impairment, the student will rely on several different mean of communication:

   - o Hearing aid--A student with a mild to moderate conductive hearing loss may wear a hearing aid which will amplify sound in the user's ear. In some hearing impaired persons, a hearing aid is not useful because the amplification of sound may be further distored by the ear.

   - o Lip reading--A student with a moderated hearing impairment reads lips and facial expressions to understand what is said.

   - o Sign language--A student with hearing impairment may communicate by fingerspelling and sign language which are types of manual communication consisting of formalized movements of the fingers, hands, arms, and body to express words and concepts.

   - o Total communication--Some moderate to severe hearing impaired persons will use a combination of the abovementioned communication systems.

4. VOCATIONAL SKILLS--The hearing impaired student probably will be capable of learning most office jobs, but the student's communication limitations will naturally impose some restrictions on the kinds of jobs that the student will be able to attain and keep. When counseling this student on career selection, keep these three points in mind:

   - o The necessary degree of communication skill required for a particular job
   - o The degree of social skill required.
   - o The fact that among all vocational office occupations, there IS a job that will be suitable for the hearing impaired student to perform

TEACHING TECHNIQUES AND STRATEGIES

1. PHYSICAL FACILITIES--The classroom should be well lighted because the hearing impaired student will rely heavily on sight to speech-read, etc. The student should be seated with a clear view of the teacher's face, other students' faces, the chalkboard, and any displays or demonstration materials. Keep classroom noise to a minimum to allow the student to use any auditory skills to the maximum.

2. CURRICULUM--Use the same basic VOE curriculum publications as used with regular students, keeping in mind the student's communication skills when assigning certain units and activities. For example, the student with a speech handicap would be able to do the written activities that accompany a unit on Telephone Techniques or Handling Office Callers and Appointments. But realistically, this student will never be hired to an office positions that requires the use of these skills. Therefore, classroom time would be better spent in teaching the student other skills that could be use in an attainable job.

3. SPECIALIZED MATERIALS AND EQUIPMENT--The following are but a few of the specialized devices that are available for the student with hearing impairment:

   - o Light attachments--Adaptations that may be necessary for the hearing impaired student in order to assure safety and functional performance on machines. Install a light for such things as:

     A margin indicator for a typewriter (See Appendix E)

     A warning signal for an office machine

     The class bell or the telephone

   - o Telephone adaptors--Receiver attachments that are available for use with hearing aids and which allow the volume to be adjusted. These amplifiers are available through the telephone company, office supply companies, and electronic and stereo shops.

4. TEACHING TECHNIQUES--Discuss with the students the best method to use in communicating with each other. This will indicate how the student learns best, and will give the student the feeling that others are concerned.

Be sure to have the student's attention before speaking. Since the student may not hear the class called to order, it may be necessary to wave, signal in some other way, or even touch the student in order to gain attention.

Speak slowly and clearly, pronouncing each word carefully. Do not exaggerate or over-pronounce words because that may distort lip movements, thus making them harder to read. Use short rather than long sentences.

While talking, look directly at the student, being careful not to touch the face in any way with books, papers, or hands, or without turning toward the chalkboard. Stand in one spot when talking rather than moving about the room because the student will have difficulty in maintaining eye contact if the teacher keeps changing angles.

Stand away from windows because light shining in the student's eyes will make it difficult to see the speaker's face. Always maintain eye contact with the student, even in the presence of an interpreter.

When repeating information, rephrase rather than saying the same words again. Repetition of a phrase may be frustrating if the student is having difficulty in understanding. Always use complete sentences when talking, even when repeating a thought.

Since the hearing impaired student often fatigues more quickly than others and may lose attention, be sure to check periodically to be sure the student is understanding the material being presented. Ask a few quick questions, and do not rely on a nod of the head from the student to indicate that the material is being understood.

Provide read-ahead material and handouts in order to give the student the opportunity of becoming familiar with the topics to be discussed in class.

Try to keep facial expressions and hand gestures appropriate and consistent with the verbal message being given.

If the hearing impaired student wears a hearing aid, remember the following:

- Stand within close range of the student when talking because hearing aids have a limited range of pickup.
- Use hand gestures and facial expressions to augment verbal instructions.
- Limit or eliminate background noises because the hearing aid will easily pick these up.
- Speak slowly so the student will have time to absorb the information given.
- Directly face the student, and be sure to establish eye contact before speaking.
- Try to determine if the student's hearing is better in one

ear than in the other, and arrange the seating so that the student's better ear is nearest to the conversation.

5. WORKING WITH AN INTERPRETER--There may be a hearing impaired student in the class who works best through an interpreter. The role of an interpreter in the class is to facilitate communication between the student and the teacher, through either sign language or lip reading. If an interpreter is to be present in the classroom, learn how to work with that person and how to work with the student by enlisting the aid of the interpreter.

   The following suggestions will help build a professional relationship with an interpreter:

   - Arrange a meeting time with the interpreter before a class begins to discuss where the interpreter will stand in order to be seen by the student, and devise an alternate plan in case the teacher or interpreter will be absent at any time.
   - Exchange telephone numbers with the interpreter so that contact can easily be made if a problem arises.
   - If the interpreter or a substitute must be absent from the the classroom, arrange to do more work on the chalkboard or provide written work for that day, and allow the hearing impaired student to sit near good notetakers, or give the student a copy of the classnotes.
   - Speak directly to the hearing impaired student--just as if the interpreter were not there--and not as if the student were a third person because treatment gives the hearing impaired person a feeling of being detached from the class.
   - Do not expect an interpreter to do such things as check class attendance, teach class materials, discipline the student involved, or to see that the student is in the class.
   - Be ready to adjust one's pace of instruction to the interpreter's pace either by stopping momentarily, repeating, or slowing down so that the student will receive the full message.
   - Use a handout of technical or unusual words, or write them on the chalkboard, not only to help the student, but also to assist the interpreter.
   - Since interpreters are ethically bound to interpret everything said in class, be sure to wait until after class to discuss any changes in teaching the student, or other conversations that are not to be shared with the student.
   - Ask the interpreter to stand so the student can maintain eye contact with both teacher and interpreter.
   - When using any visual or audiovisual materials which require dimming of lights, provide a small lamp to focus on the interpreter while the discussion is being given.

EXAMPLE

UNIT II

MAINTAINING THE PETTY CASH FUND

NOTES TO THE INSTRUCTOR

ADAPTING THIS UNIT FOR THE HEARING IMPAIRED STUDENT

(NOTE: The following suggestions are given for use with the student who has a moderate hearing impairment, and who has some residual hearing with the help of a hearing aid. Follow the suggestions provided in the NOTES TO THE INSTRUCTOR for this unit, plus the suggestions listed here.)

I. Preparation for teaching the unit to hearing impaired students:

A. Determine the reading level of the Objective and Information sheets, and of any other material to be used as handouts, by using the Reading Level Formula in Appendix A. Rewrite any material that is of too high a level for the student.

B. Make copies of the Objective Sheet, Information sheets, Transparency Masters, and Activity sheets for the student.

C. Review the teaching style to be used for this unit. Determine if the explanations of information and procedures will be clear and visual enough for the student with hearing difficulty to understand. Some examples are:

1. By using transparencies, it is possible to face the student. When using the chalkboard, the teacher's back is to the student.
2. Use charts and diagrams.
3. Give hands-on demonstrations.
4. Use hand gestures to emphasize what is being said to the class.

II. Information and Activity Sheets

A. Provide handouts listing the terms and definitions, purpose of the Petty Cash Fund, etc., to the student one or two days before the unit is to be presented to the class.

B. As the information about the Petty Cash Fund is being discussed with the class, always remember to:

1. Be sure to gain the student's attention before speaking, and stand near the student who has the hearing difficulty.
2. Look directly at the student, and stand in one place while talking. That makes it easier for the hearing impaired student to watch the lips.
3. Speak slowly and clearly, but do not over-pronounce or exaggerate words.
4. Use appropriate facial expressions and hand gestures to help relay the verbal message.
5. When repeating information, try to rephrase it so that it may be more easily understood.

C. If necessary, pair the hearing impaired student with another student who takes good notes in order to be sure the student has access to class notes.

RELATIONSHIP OF DEGREE OF IMPAIRMENT TO EDUCATIONAL NEEDS

	Average of the Speech Frequencies in Better Ear*	Effect of Hearing Loss on the Understanding of Language and Speech	Educational Needs and Programs
Slight Hearing Loss	27 to 40 dB (ISO) 20 dB or less	-May have difficulty hearing faint or distant speech -May experience some difficulty with the language arts subjects -Generally unnoticed	-May need attention to vocabulary development -May benefit from hearing aid -Needs favorable seating and lighting -May need lipreading instructions -May need speech therapy
Mild Hearing Loss	41 to 55 dB (ISO) 20-40 dB	-Understands conversational speech at a distance of 3-5 feet (face to face) -May miss as much as 50% of class discussions if voices are faint or not in line of vision -May have slightly limited vocabulary -Difficulty when tired or inattentive, in distant theater seats, in noise of general conversation	-Individual hearing aid by evaluation & training in its use -Favorable seating and possible special class placement -Attention to vocabulary and reading -Lipreading instruction -Speech conversation and correction, if indicated
Moderate Hearing Loss	56 to 70 dB (ISO) 46-60 dB	-Conversation must be loud to be understood -Will have increased difficulty in group discussions -Is likely to have defective speech -Is likely to be deficient in language usage and comprehension -Will have limited vocabulary	-Special help in language skills, vocabulary development, usage, reading, writing, grammar, etc. -Individual hearing aid by evaluation & auditory training -Lipreading instruction -Speech conversation and correction -Attention to auditory & visual situations at all times
Severe Hearing Loss	71 to 90 dB (ISO) 60-80 dB	-May hear loud voices about 1 ft. from ear to moderate voice several inches from ear -May be able to identify environmental sounds such as sirens and airplanes -May be able to discriminate vowels but not all consonants -Speech & language defective and likely to deteriorate	-Emphasis on language skills, concept development, lipreading and speech -Program needs specialized supervision and comprehensive supporting services -Individual hearing aid by evaluation -Auditory training with individual and group aids
Profound Hearing Loss	91 dB or more (ISO) Over 80 dB	-May hear some loud sounds about 1 inch from ear but is aware of vibrations more than tonal pattern -Relies on vision rather than hearing as primary avenue for communication -Speech and language defective and likely to deteriorate	-Emphasis on all language skills, concept development, lipreading and speech -Program needs specialized supervision and comprehensive supporting services -Continuous appraisal of needs in regard to oral and manual communication -Auditory training with group and individual aids

*Note: First decibel rating is based on current ISO standard (International Standard Organization). Second decibel rating is based on information from U.S. Department of Labor, Manpower Administration, 1971. (Kirk)

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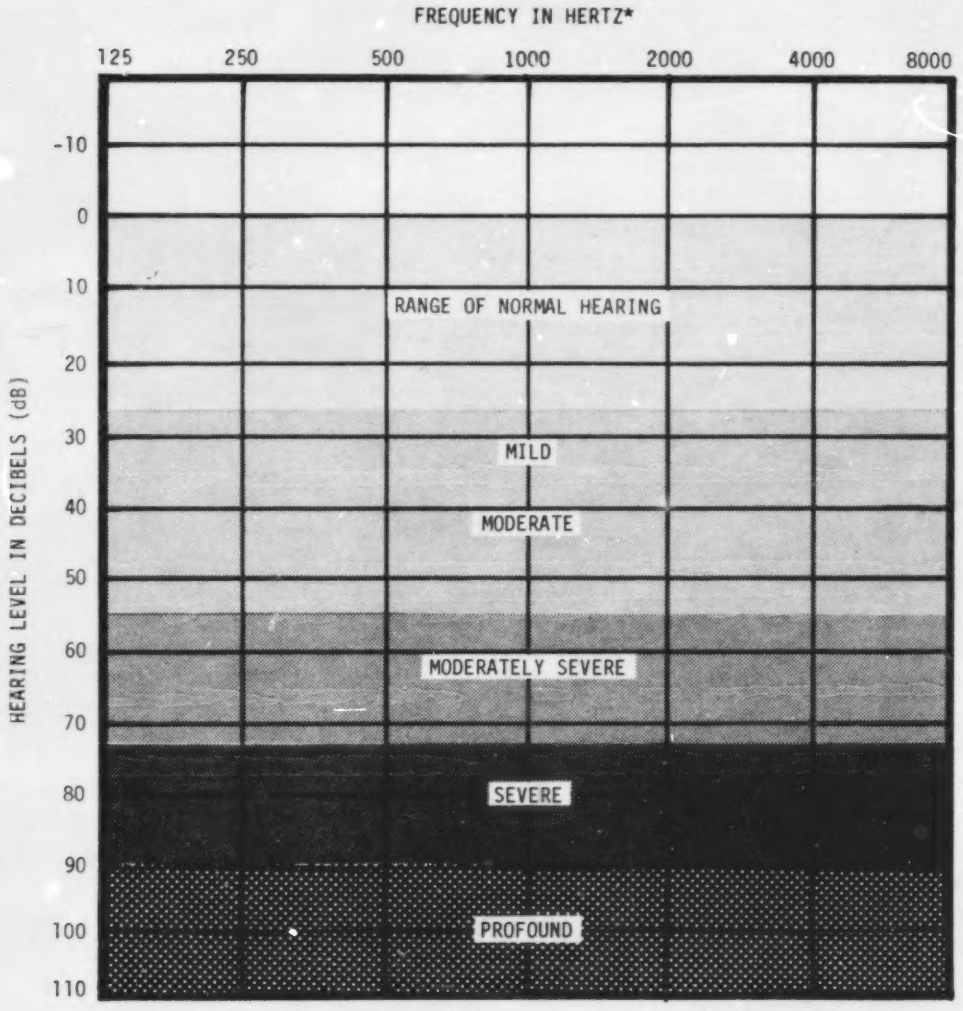
AUDIOGRAM SHOWING RANGES OF HEARING LOSS



*Hertz: International unit of frequency, equal to one cycle per second

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ASSOCIATIONS FOR HEARING IMPAIRED INFORMATION

Alexander Graham Bell Association
for the Deaf, Inc.
1537 35th Street, NW
Washington, DC 20007

American Speech and Hearing Association
9030 Old Georgetown Road
Washington, DC 20014

Council of Organizations Serving the Deaf
P. O. Box 894
Columbia, Maryland 21044

International Association of Parents of the Deaf
814 Thayer Avenue
Silver Spring, Maryland 20910

National Association of the Deaf
814 Thayer Avenue
Silver Spring, Maryland 20910

National Technical Institute for the Deaf
Rochester Institute for the Deaf
1 Lomb Memorial Drive
Rochester, NY 14623

THE MENTALLY RETARDED STUDENT

DEFINITION

Throughout the years, several different definitions have been used to define this difficult-to-understand disability. Today, the most widely accepted definition of mental retardation refers. . .

> to significantly subaverage intellectual ability existing concurrently with deficits in adaptive behavior (i.e., lack of personal independence and social responsibility) which are manifested during the developmental period--birth through age six.

STUDENT ABILITIES AND NEEDS

Mental retardation is a heterogenous disability because if covers such a wide range of degrees of retardation. The degrees can generally be grouped into the following: mild, moderate, severe, and profound. Since it is inappropriate to generalize about the characteristics of this disability as a whole, and since vocational potential is good for only the upper ranges of retardation, only those characteristics that are common among the mildly retarded group will be discussed.

1. INTELLECTUAL SKILLS--The retarded student may learn more slowly and may become more easily confused when compared with students of normal intelligence, but this does not necessarily mean that the mildly retarded student does not have the capacity to learn as much as the student with normal intelligence. Given repeated trials that involve seeing and doing, the retarded student's performance of routine tasks is comparable to that of nonretarded students.

   The retarded student tends to have problems in dealing with:

   - Abstract concepts
   - Following directions
   - Developing observation skills
   - Memorizing information
   - Generalizing learned skills to other similar situations

   The retarded student often misses what appears obvious to everyone else, and may not realize when to try a new approach to a problem. Mildly retarded students have a short attention span, although this may sometimes be caused by their being given tasks that are too difficult, too easy, or otherwise inappropriate.

2. ACADEMIC SKILLS--The mildly retarded student can attain a 4th to 6th grade (or even higher) academic level in reading, writing and math. Although verbal communication skills are good, there may be some difficulty in expressing ideas and listening to others.

3. PHYSICAL SKILLS--Most mildly retarded students appear generally normal and have few physical limitations. Although many mildly retarded students are delayed in eye-hand coordination, and in visual and auditory discrimination, they are able to learn many complex motor skills with proper training.

4. SOCIAL SKILLS--The social skills of the mildly retarded are much like and vary as greatly as those of their nonretarded peers. Many adolescent mildly retarded students will have acquired an ingrained sense of failure because of previous academic difficulties. They frequently display remarkable ingenuity in avoiding situations that may lead to further failure.

5. VOCATIONAL SKILLS--When properly placed on a job, the mildly retarded perform as efficiently as do nonretarded employees. On simple or routine tasks, their efficiency often exceeds that of nonretarded employees, and they tire of tasks less quickly. On routine tasks, they show a high degree of job satisfaction and have lower rates of tardiness, absenteeism and job turnover than do nonretarded employees.

TEACHING TECHNIQUES AND STRATEGIES

1. PHYSICAL FACILITIES--Extensive changes in the physical arrangement of the classroom are not necessary. The student's work area should be simple and uncluttered because clutter may be confusing to the retarded student who learns best by working on one project at a time.

2. SETTING GOALS--Determine the course goals for the mentally retarded student by reviewing the basic core curriculum used in your classroom. Design the following for the student:

   - Job goals--Determine what occupational jobs within the basic core curriculum might be appropriate for the student to learn based on information received from the student's vocational assessment and ARD meeting that specifically outlines each student's strengths and needs.

   - Task goals--Analyze the identified jobs for the task competencies required. Do not eliminate those tasks that may seem too difficult for the retarded student.

   - Subtasks--Break down the tasks into more specific subtasks. The more specific the direction can be about what the student must do, the more effective the training will be.

   Plan with the student what is to be learned. This will help the student gain some feelings of control over one's personal life and what can be accomplished.

4. CURRICULUM--Use the same basic VOE Units of Instruction used with regular students because the mildly retarded student should be taught to do jobs that are essentially similar to those for which your regular students are trained.

Adapt the VOE Units of Instruction to meet the individual needs of the mentally retared student by following these points:

- o Organize--Objectives should be sequenced from easiest to most difficult. Don't teach a new topic based on unlearned information.
- o Be specific--The more complex the task, the more specific the training should be. Show the student exactly what to do. Don't rely on the student to incidently pick up on minor details.
- o Use visuals--Use a variety of visual aids. These can include filmstrips, slides, transparencies, illustrations of many types including maps, charts, pictures; and hands-on demonstrations, etc.
- o Divide into small steps--Present instruction in small increments, with time for practice.
- o Repeat and check--Frequently check to see whether the student can demonstrate understanding of each task.
- o Emphasize--Allow time for overlearning encourage practice, and periodically check to see that the student remembers important information and steps.
- o Reinforce--Frequently praise the student for work accomplished, no matter how small the task. Emphasize that new assignments are the result of satisfactory performance on previous assignments.

Provide the appropriate sections of the adapted VOE curriculum to the special education teacher who is responsible for the student's overall educational program. It is especially important that those vocational objectives which rely heavily on academic skills be reinforced in the student's special education class.

5. SPECIALIZED EQUIPMENT AND MATERIALS--No special equipment is needed for teaching the mentally retarded student that is not also needed for the regular student. Equipment that may be helpful in presenting information to students are:

- o Audiovisual equipment for slide/tape, filmstrip, or videotape.
- o Transparencies and overhead projector
- o Large, simple charts and diagrams
- o Language master
- o Bulletin boards

Mentally retarded students learn best from hands-on experience that involves seeing and doing rather than listening to a lecture. Before providing the mentally retarded student with written material, check the reading level. To do this, follow the steps outlined in the Reading Level Formula found in Appendix A. If the material is of too high a level, adapt it by rewriting it into shorter words and sentences. Provide definitions for any words which may be unfamiliar to the student.

6. TEACHING METHODS--Teach directly to the performance objective. Many special needs students will become confused if "nice-to-know" information that is not directly related to the objective is introduced into the class. Present new information in small, sequenced amounts. Frequently review the information to be learned in short, 15-minute practice sessions that are spaced throughout other classroom activities. Special needs students will be more interested in learning if the information looks short and simple. Provide for over-learning and informal testing of the student's knowledge before introducing any new information. Rely on the student's smile or a nod that means "yes".

   Use a combination of media approaches. Audiovisual presentations, illustrations, pictures, low reading level material, and transparencies are among several different approaches. Also, provide the actual demonstration of the machines, hands-on experiences, and perhaps other instructional methods.

   Actively involve each student in learning by providing individual and small group experiences such as:

   - o Demonstration/performance
   - o Simulation exercises
   - o Discussion
   - o Oral reinforcement drills
   - o Committees
   - o Problem situations
   - o Student reports
   - o Assigned job roles; e.g., Job Supervisor, Receptionist, File Clerk

   The traditional lecture method is least effective with special needs students since usually they are not actively involved in learning while hearing a lecture. Continuously show enthusiasm and confidence in the student's ability to learn. Don't give the student a chance to fall within the self-fulfilling prophesy of failure--"My teacher acts like I can't learn it, so I guess I can't."

   Teach broad work-related objectives as well as narrow task-oriented objectives that are concrete and clear to the student. For example, talking about being on time is not as effective as demonstrating how to use a time clock, and showing the student where to keep supplies and equipment is better than telling the student to maintain an orderly work area.

7. TESTING METHODS--Test and evaluate the mentally retarded student's achievement toward an objective on an individual basis, and not in comparison to scores made by others. Test should be comprised of the job tasks that the student is able to physically perform, and they should not be graded on their performance on a written or oral exam.

   Test informally by regularly and frequently checking the performance of the student since a "formal" test that occurs only three or four times during the semester is much more threatening. Keep a record or chart of each student's progress, based on frequent informal tests, so that even the smallest gain will be noticeable by the student. (This is a great motivational aid for the student.)

UNIT IV

OPERATING THE STENCIL DUPLICATOR

NOTES TO THE INSTRUCTOR

ADAPTING THIS UNIT FOR THE MENTALLY RETARDED STUDENT

(NOTE: The following suggestions are given for use with the student who has mild retardation and who has a fifth grade reading level.)

I. Preparation for teaching the unit to mentally handicapped students:

A. Preview the unit. Decide what adaptations are needed for the mentally retarded students in the class.

B. Check the Objective, Information, and Activity sheets for clarity, concreteness, and logical step-by-step instruction.

C. Check the reading level of the material by using the Reading Level Formula in APPENDIX A.

D. Adjust the reading level of the Information and Activity sheets by:

1. Rewriting sentences, using shorter words and sentences.

2. Adding pictures and illustrations.

3. Providing an additional vocabulary list of unfamiliar words used on the Information Sheet.

E. On the Objective Sheet, break down the Specific Objectives into smaller, more easily measured objectives. For example, Objective 5.a--TYPE A STENCIL--could be broken down into the following smaller objectives:

1. Gather supplies for typing a stencil.
2. Prepare typewriter for typing a stencil.
3. Assemble stencil pack and place it in typewriter.
4. Type the stencil.
5. Proofread and correct mistakes on the typed stencil.
6. Remove the stencil and clean up the work area.

F. Prepare simple, short Assignment Sheets to use in reinforcing the learning of the material presented. An Assignment Sheet should cover only one subject; e.g., TERMS AND DEFINITIONS. The object is to informally test the student by using "fun-type" assignments which will allow the teacher and student to observe student progress. Assignment sheets using pictures to be labelled, TRUE or FALSE questions, Crossword Puzzles, and similar activities may be prepared.

G. Identify logical checkpoints in the Activity sheets where smaller steps may be learned and then tested, as opposed to learning a complete task and then testing the student over the entire task.

H. Determine if the Unit Test is appropriate for use with the mentally retarded student. REMEMBER: The mentally retarded perform best by demonstrating and activity because writing answers is often difficult.

II. Objective Sheet

A. When discussing the Unit Objective and the Specific Objectives:

1. Give concrete examples for each objective discussed.

2. Explain how each objective will be measured, or how the student will be tested for proficiency in each.

B. Provide any additional objectives, such as prerequisite skills, that are necessary for learning this unit but which are not necessarily taught in this unit. It is assumed that the student will already be competent in some skills, such as:

1. Ability to type

2. Ability to clean typing element

3. Ability to adjust typewriter ribbon position and pressure setting

4. Ability to set margins on typewriter

III. Information Sheet

A. Label the various materials and equipment with the terms, definitions, and features. This will make it easier for the mentally retarded student to associate concrete items with the more cognitive, abstract knowledge.

B. Present information from the Information Sheet in small, sequenced steps, reinforcing each with the simple Assignments Sheets you have designed.

C. Chart each student's progress in learning the information, based on performance of the Assignment sheets.

D. Give a student praise for even the smallest accomplishment, and as confidence is built, gradually reserve praise toward the end of a completed unit.

E. Provide the Information sheets, any corresponding Information sheets, and other supplemental material to the student's Special Education resource teacher to allow additional reinforcement of the material.

IV. Activity Sheets

(NOTE: Several methods may be used in teaching an activity.)

A. Chain backwards

1. Demonstrate an entire task, omitting the last step.

2. Have the student then complete the last step.

3. On the second demonstration, allow the student to complete the last two steps.

4. Repeat this process until the student is completing the entire task without help. Group the steps if the student can remember them, rather than doing them one at at time.

B. Use short, sequenced steps--This allows the student to master a step before going on to the next.

C. Use the audivisual presentation--Have the student view THE STENCIL DUPLICATOR for reinforcement of information. If possible, have the student practice doing the steps of the activity while viewing the presentation.

D. Rate progress--As activities are completed, allow each student to rate personal progress on a DAILY PROGRESS CHART that breaks the activity into its steps.

V. Unit test

A. Omit all or parts of the test.

B. Determine a student's grade, based on:

1. Performance on informal assignments

2. Performance on activities

3. The charted progress of the student throughout this unit

THE PHYSICALLY IMPAIRED STUDENT

DEFINITION

The terms physically or orthopedically handicapped refer to deformities or crippling of the body or limbs. These terms can cover many types of disabling conditions with different degrees of impairment. Some students may have physical handicaps that are so slight that they are rarely noticeable. Others may have moderate handicaps that are quite noticeable but which can be dealt with in the regular classroom. Then, there may be some students who are so severely involved that they will require special training outside of the regular classroom.

In this section, only the mildly and moderately involved disabilities will be discussed.

Some of the more common types of orthopedic handicaps which may be encountered in the classroom include the following:

1. DISABILITIES DUE TO AMPUTATION OR PARALYSIS--Amputation of a limb or limbs may have been the result of a traumatic accident or from surgery for such conditions as a tumor, a diabetic condition, or an inadequate blood supply. Paralysis involves loss of voluntary motor function caused either by disease or by an accident.

   Some of the more common types of paralysis are these:

   - Quadriplegia--partial or complete paralysis of both arms and legs, the result of a spinal cord injury.
   - Paraplegia--paralysis of the lower part of the body, the result of a spinal cord injury.
   - Hemiplegia--partial or complete paralysis of one side of the body, or a part of one side, the result of brain damage.

2. CEREBRAL PALSY--This condition may have been due to damage occurring before, during, or shortly after birth, and involves those parts of the brain that control and coordinate the voluntary muscles in the arms, legs, tongue, and eyes. Sometimes this disability is so slight that it is barely noticeable, but the majority of cases are profound, and involve many symptoms. These may be awkward and involuntary body movements in the face, arms, and legs; an irregular gait; guttural speech; and other secondary handicaps such as mental retardation or visual and speech impairments. Although cerebral palsy is not a progressive disorder, there is no known cure for it.

3. SPINA BIFIDA--This is a common birth defect in which the lower part of the spine fails to grow together, causing leg paralysis, lack of body waste control, and sometimes hydrocephalus (enlargement of the head). Most persons with spina bifida have normal intelligence, but are confined either to a wheelchair or crutches.

4. EPILEPSY--In this condition, an improper electrical functioning of brain cells causes the brain to temporarily lose partial or complete control over body muscles, consciousness, senses, or even thoughts. When this happens, the person is having a seizure which may last from a minute to several hours. Most seizures can be controlled with medication, and therefore persons with epilepsy can be vocationally trained in just about any job.

STUDENT ABILITIES AND NEEDS

1. ACADEMIC SKILLS--Physically handicapped students, just as non-handicapped, will have wide differences in reading comprehension, math skills, and general information. However, they can,most probably, be categorized as having average academic skills. Of all of the various types of physical handicaps, those students with cerebral palsy will tend to have lower academic functioning because of their tendency to have other secondary disabilities such as mental retardation, and visual and hearing impairments.

2. SOCIAL SKILLS--The use of crutches, wheelchairs, and other mobility appliances, and the physical appearance of these persons may attract unavoidable attention, and--unfortunately--may create tremendous public discrimination for the physically handicapped. Due to the public attention and discrimination, that they have received throughout the years, the handicapped are sensitive to being restricted in what they can do and where they can go, and therefore can easily become frustrated about their situation.

   Sometimes, this frustration is demonstrated through inappropriate social expressions such as:

   - o Becoming verbally aggressive
   - o Blaming others
   - o Repressing desires
   - o Withdrawing into fantasy
   - o Downgrading an original goal
   - o Acting less mature than age
   - o Compensating for a disability by shifting to different interests

3. SENSORY MOTOR SKILLS--As with academic skills, there is a wide range of sensory motor performance among the physically handicapped; therefore, generalizations about the sensory skills of this group are inappropriate.

4. VOCATIONAL SKILLS--Many physically handicapped persons are capable of learning complex jobs. However, there are several barriers which often restrict their becoming vocationally independent. Two of the barriers are these:

   - o Lack of transportation services to and from a job, since many are unable to drive a car.

   - o Need for enough income from a job to provide above-average

medical expenses, assistive devices for the home, home nurse aide assistant, etc. In the past, appropriate vocational training and placement in the higher-paying jobs have not been available.

TEACHING TECHNIQUES AND STRATEGIES

1. PHYSICAL FACILITIES--The greatest barrier a physically handicapped student faces in becoming vocationally trained is the school's physical facilities. Modifications in accessibility to the school building, rest rooms, classrooms, and equipment are required more often than are curriculum modifications. Although entire buildings must be made accessible, in this section the discussion will be directed to only those modifications needed in the VOE classroom.

   The following suggestions are for the VOE teacher to consider:

   - Be sure cabinets and drawers have no protruding handles that can be hazard to the person in a wheelchair.
   - Avoid projecting feet on partitions because these can be dangerous to the persons who use crutches.
   - Provide adjustable desk surfaces that will allow persons in wheelchiars to fit comfortably. The appropriate height for a desk is approximately 30 inches from the floor.
   - Convert right-handed desks to left-handed when required.
   - Make sure edges and corners are rounded, not sharp.
   - Allow enough space at a work area to allow a person in a wheelchair to make a 180-degree three-point turn.
   - Locate the handicapped individual near a main walk area to provide easier mobility.
   - Provide classroom aisles that are wide enough to be used by a person in a wheelchair.
   - Reserve a spot in the classroom for the handicapped student who must use a wheelchair. This thoughtful convenience is a courtesy, and should be positioned inconspicuously and fairly.

2. SPECIALIZED MATERIALS AND EQUIPMENT--Locate what special equipment and assistance that may be available through your school's special education services, or through medical and engineering services. For modifications of office equipment such as typewriters, adding machines, or word processors, contact the area sales representative of the company that makes the equipment used in the school. These persons can supply information about possible adaptations.

   For the student who needs an adaptation for a piece of equipment and this is not available through other means, contact Project IMPART (Innovative Matching of Problems to Available Rehabilitation Technology). This project has access to the

latest research in engineering centers, and aerospace, atomic energy, aviation, and defense technologies. Project IMPART is a public service through the Texas Rehabilitation Commission and is available to anyone who has a work-related rehabilitation problem. Once a teacher contacts the IMPART staff about a needed adaptation or paticular problem, then specialized engineers search for and/or design the individualized adaptation. Some examples of problems that have been solved by the IMPART staff are listed in Appendix F. The project address is:

Director of Programs, Facilities, and Services
Texas Rehabilitation Commission
118 E. Riverside Drive
Austin, TX 78704

Telephone (512) 445-8000

3. CURRICULUM--In most instances, it will be unnecessary to modify the VOE units of instruction for the physically handicapped student. However, when reviewing the curriculum content, it is well to keep in mind this question: Is the curriculum appropriate for the physical limitations of this student?

   Answers to the question will vary greatly, depending on the individual's physical strengths and weaknesses. The teacher may, therefore, need to seek the advice of special education personnel, physical or occupatinal therapists, or the vocational rehabilitation counselor. It may also be helpful to contact the IMPART project.

   If the physically handicapped student also has secondary handicaps such as vision or hearing impairment, or mental retardation, curriculum modifications will be necessary. Refer to those sections of this handbook which describe such modifications.

4. TEACHING METHODS--If note-taking is required in a class, these alternatives may be considered for the physically handicapped student whose disability prevents efficient writing:

   - o Use a tape recorder.
   - o Allow another student to make carbon copies of notes taken.
   - o Provide the student with an outline of the lecture given.

   Alternatives to giving written tests could be one of these:

   - o Give an oral test.
   - o Allow student to dictate answers into a tape recorder
   - o Allow student to type the test answers.

   Set reasonable time limits for class assignments and tests since in the real world of work the physically handicapped will not be given special considerations in time.

   When planning field trips, be sure that a wheelchair can be accommodated.

Make only those modifications that are absolutely necessary for the student in order to avoid creating a sense of dependency, which does not help the student prepare for the real world of work; and avoid allowing the student to use the disability as a means of getting special privileges.

5. TEACHING METHODS FOR SPECIFIC PHYSICAL HANDICAPS--The following are suggested strategies in relation to some specific types of handicaps:

   - o Cerebral palsied students with severe speech impairment--Be patient, and concentrate on listening to the student's speech pattern in order to learn ways of understanding what is being said.
   - o Paralysis--Since this condition often is accompanied by a lack of sensation, the student may be harmed by heat, severe cold, scraping, rubbing, or bumping into an object without being aware. Always take any necessary precautions to help a student avoid getting hurt.
   - o Hemiplegia--Persons with paralysis on one side of the body may also have perceptual impairment which causes objects to appear backwards, upside down, or far away, making it necessary to keep the environment and learning experiences as visually simple as possible. Assign only the number of tasks that a student can accomplish within a given period of time. Give simple, concrete instructions, with many repetitions, and show the student exactly what to do, how to do it, and when to do it. Be generous with praise for a student's capabilities.
   - o Epilepsy--If a student with epilepsy has a seizure in the classroom, follow these suggestions:

     BE CALM--the patient is not in pain, is not suffering, and is in no danger. There is no need to be frightened--seizures are not "catching."

     DO NOT atttempt to stop an attack once it has started. Do not attempt to revive the patient, but let the seizure run its course, which usually takes only a few minutes. Ease the person to the floor, loosen tight clothing, but do not restrain movements.

     Turn the patient's face to the side to permit release of saliva, and make certain that breathing is not obstructed. A small pillow or other type of rest may be placed under the person's head. DO NOT force open clenched jaws. DO NOT force anything between the person's teeth, and NEVER place a finger in the individual's mouth.

     Do not give the person anything to drink, but stay with him/her until fully covered to consciousnessness and there is no further confusion. If the person is tired, allow for rest, but when it is apparent he/she is feeling all right, encourage resuming regular activities.

     Don't be alarmed if a person with a seizure appears to have stopped breathing or to be breathing improperly. Carefully observe details of the attack so that they can be reported to the person's family or doctor.

After a seizure, explain to the class members that certain nerve cells in the student's brain failed to work properly. Include the student in the discussion and do not allow the others to engage in ridicule.

If a student who suffers from epilepsy is taking medication to control seizures, become aware of any possible side effects such as drowsiness, fatigue, nausea, dizziness, diarrhea, double vision, awkwardness, fever, or skin rash.

RESOURCES FOR INFORMATION ABOUT PHYSICAL HANDICAPS

American Allergy Academy
225 E. Michigan St.
Milwaukee WI 53202

American Diabetes Association
1 West 48th St.
New York NY 10020

American Heart Association
44 East 23rd St.
New York NY 10010

Arthritis Foundation
475 Riverside Drive, Rm. 240
New York NY 10027

Division for the Blind and
Physically Handicapped
Library of Congress
Washington DC 20542

Epilepsy Foundation of America
1828 L St. NW
Washington DC 20036

Institute for the Crippled and
Disabled
400 1st Ave.
New York NY 10009

Making Facilities Accessible to
the Physically Handicapped
State University of Construction Fund
194 Washington Ave.
Albany NY 12210

Muscular Dystrophy Associations
of American, Inc.
810 Seventh Ave.
New York NY 10017

Myasthenia Gravis Foundation
230 Park Ave.
New York NY 10017

National Amputation Foundation
12-45 150 St.
Whitestone, Long Island NY 11357

National Association of the
Physically Handicapped, Inc.
6473 Gradville Ave.
Detroit MI 48228

National Center for a Barrier-
Free Environment
8401 Connecticut Ave., Suite 402
Washington DC 20015

National Cystic Fibrosis
Research Foundation
3379 Peachtree Road, N.E.
Atlanta GA 30320

National Easter Seal Society
for Crippled Children and Adults
2023 W. Ogden Ave.
Chicago IL 60612

The National Foundation--
March of Dimes
P.O. Box 2000
White Plains NY 10602

National Kidney Foundation
116 East 27th St.
New York NY 10016

National Mutliple Sclerosis Society
257 Park Avenue South
New York NY 10010

National Paraplegia Foundation
333 N. Michigan Ave.
Chicago Il 60601

National Spina Bifida Association
of America
P.O. Box 5568
Madison WI 53705

United Cerebral Palsy Association, Inc.
66 East 34th St.
New York NY 10016

MANUFACTURERS OF EQUIPMENT FOR PERSON WITH SPECIAL NEEDS

FashionAble, Incorporated
Rocky Hill NJ 08553

Foley Manufacturing
3000 Fifth St., N.E.
Minneapolis MN 55418

Fred Sammons, Incorporated
Box 32
Brookfield IL 60513

Medical Equipment Distributors
1215 South Harlem
Forest Park IL 60130

Multi-Marketing and Manufacturing
P.O. Box 1125
Littleton CO 80160

Prentke Romich Company
R.D. 2, Box 191
Shrene OH 44676

Riswell, Incorporated
P.O. Box 73
Greenwich CT 06836

S.C.M. Corporation,
Consumer Products Division
65 Locust Ave.
New Canaan, CT 06840

Sparr Telephone Arm Company
P.O. Box 143
Allamuch NY 07820

Summit Services
535 Division St.
Campbell CA 95008

Typewriting Institute for the
Handicapped
3102 W. Augusta Ave.
Phoenix AZ 95021

International Business Machines (IBM)
(consult your local telephone
directory, or that of the nearest
large city)

IMPART (Innovative Matching of Problems
to Available Rehabilitation Technology)
Texas Rehabilitation Commission
118 East Riverside Drive
Austin TX 78704
(provide information about products)

THE VISUALLY HANDICAPPED STUDENT

DEFINITION

Visually handicapped students are those whose sight is so impaired that they cannot be educated adequately or safely in the regular classrooms of the public schools without provision of special services. A common misconception about the visually handicapped is that this disability is limited to those with a total lack of sight. In reality, however, there is a wide range of visual handicaps--from total blindness (which represents only 10 percent of the legally blind population) to partial sight. A legally blind person has 20/200 eyesight, or less. However, for the educator the term visual handicap can be defined by using the two following practical definitions:

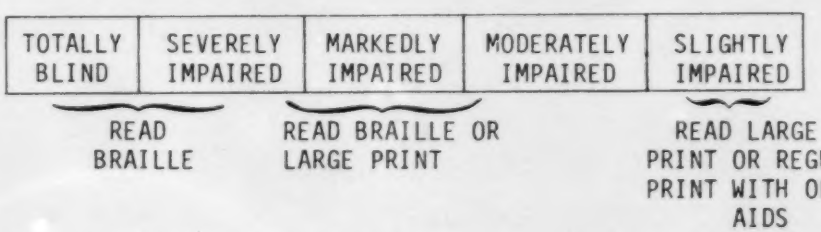
- o Totally blind---those who have no functional vision to see print or objects in their environment.
- o Visually impaired---those who have low vision and can see print or objects with the use of optical aids.

STUDENT ABILITIES AND NEEDS

The needs of a visually handicapped student will vary according to the age at which the disability occurred. The student who has been blind from birth or an early age will need special help in developing space and form concepts such as learning the color and shape of a piece of office equipment. The student who has been recently blinded will need special help in adapting to blindness.

1. READING SKILLS--The severity of the visual handicap will determine what kind of reading materials will be needed. See the figure below.

SEVERITY OF VISUAL HANDICAP



All visually handicapped students will lean heavily on the use of auditory devices such as tape recorders, records, and other electronic devices. Slightly to moderately visually handicapped students will be able to read by using large-print materials, magnifying lenses, and/or closed circuit television.

2. ACADEMIC SKILLS--A visually handicapped students academic skills are no different than those of sighted students when using the appropriate instructional aids. Learning is accomplished primarily through hearing and touch; therefore, verbal instructions should be given in clear and detailed explanations. The teacher will learn to give directions that need no visual clues to provide complete understanding.

3. SOCIAL SKILLS--The visually handicapped student's social skills

will depend on how well the student is able to move about in the environment. Often, help will be needed in improving personal appearance in such areas as inappropriate or untidy dress, hair style, gait and posture, and mannerisms because the student lacks visual models for dress and behavior.

TEACHING TECHNIQUES AND STRATEGIES

1. PHYSICAL FACILITIES--Organize the classroom so that it is free of obstacles, with easy access in and around each area--for example, from desk to machine area. Allow the student time to spend in exploring the classroom, i.e., walking around the room, touching walls, doors, etc.; examining equipment and furniture in order to become oriented to the location of everything; and to learn the shapes, textures, and sizes of what is in the room.

   During the school year, if any necessary physical changes or rearrangement becomes necessary, be sure to promptly inform the student and repeat the orientation process.

   If possible, provide the student with a movable desk or table that can be adjusted for height, position, or angle in order to accommodate the student's use of any residual vision. Place the student's work area where the student can hear clearly--for example, away from windows and near the front of the classroom. If the student relies heavily on any residual vision to aid in learning, be sure any needed chalkboards or visual media are near, and provide written materials in large print.

   Take preventive measures toward the following in order to ensure safety in the classroom:

   - Obstructions or physical changes in the room, e.g., open drawers or cabinets
   - Inappropriate or inadequate safeguards on machines, e.g., not just visual safety devices, but also auditory and/or tactual safety devices.
   - Noises that mask hazards
   - Undue glare and shadow effects that might mask a hazard

2. CURRICULUM--Provide curriculum that is concrete since the student may lack a well developed concept of space or form; things that cannot be touched or heard are difficult to understand without the benefit of sight. Provide unified instructions in as logical a manner as possible, using adaptations.

3. SPECIALIZED MATERIALS AND EQUIPMENT--The following list contains some of the physical aids that may be provided for the visually-impaired student. There are many now available from a number of sources.

   - o Audio aids--tools such as cassettes and recorders, which are basic aids for the visually handicapped. Recordings enable the student to keep a verbal record of most of the material presented to sighted students in printed form.

   - o Closed circuit televison (CCTV)--A media that is used to magnify print of reading material. Other magnifiers of glass or plastic can be used to view parts of office equipment, as well as for reading material.

   - o Abacus and talking calculator--Aids in making mathematical calculations.

   - o Braille and large-print materials--Traditional aids for the blind. If material cannot be found in this format, it can be easily transcribed, free of charge, by volunteer service groups. Contact the Volunteer Services Section of the Library of Congress in Washington, D.C.

   - o Slate and stylus, Braille writer--For short note, use the former; the Braille writer works much like a typewriter.

   - o Electronic reading aids--the Optacon and Stereotoner enbable reading of standard print ink.

   - o Other special vocational aids--Consult the ANNUAL CATALOG OF AIDS AND APPLIANCES FOR BLIND AND VISUALLY IMPAIRED PERSONS, distributed by the American Foundation for the Blind.

4. TEACHING METHODS--Some methods that have been used successfully include the following:

   - o Verbalize visual cues; e.g., hand movements during demonstrations.

   - o Avoid abstract terms, such as "this fastens on there."

   - O Explain how similar parts or processes can be distinguished through touch or sound.

   - o Provide written material in large, black print only to the student whose visual handicap is minimal, and who is able to effectively learn from such material.

   - o Record special lessons on tape to provide the student with a means of outside study.

   - o Utilize the senses of touch, smell, and hearing in presenting a lesson.

   - o Encourge sighted classmates to help, but not to do the work.

   - o Always address the student directly; avoid talking through another person.

EXAMPLE

UNIT II

HANDLING THE MAIL

NOTES TO THE INSTRUCTOR

ADAPTING THIS UNIT FOR THE VISUALLY HANDICAPPED

(NOTE: The following suggestions are given for use with the student who has moderately to slightly impaired vision, and who is able to read large print. Follow all suggestions provided in NOTES TO THE INSTRUCTOR for this unit, plus the suggestions listed.)

I. Preparation for teaching the unit to visually handicapped students:

A. Preview the unit. Decide what adaptations are needed for the visually handicapped students in the class.

B. Check the Objective, Information, and Activities sheets for clarity, concretness, and locigal step-by-step instruction.

C. Prepare the Information sheets, Activity sheets, and the Unit Test in at least one of the following ways:

1. Transcribe the material in large print.

2. Dictate onto an audio cassette.

D. When requesting brochures and books for the unit from the U.S. Postal Service, ask for copies of each in large print, if available.

E. When arranging for the class to visit the mail-handling facility in a large company, be sure to inform the person who is handling the arrangements for the visit that a visually handicapped student will be accompanying the class, and explain what special needs will have to be considered during the tour.

F. When arranging for a vendor to demonstrate the mail-handling equipment, explain to the person in charge that it would be helpful to the visually handicapped student if, during the demonstration:

1. Visual cues, such as hand movements, are also verbalized.

2. Abstract wording is avoided, such as saying "you turn it on here."

3. The visually handicapped student is allowed to touch and explore the equipment being discussed.

II. Objective Sheet

A. When discussing the unit and specific objectives, be sure to:

1. Check the physical placement of the student with hearing problems so there is no difficulty in hearing.

2. Give concrete examples for each of the objectives discussed.

B. Add any objective necessary to fully meet the handicapped student's needs.

III. Information and Activity Sheets

A. Information Sheets

1. Provide the visually handicapped student with either taped lessons or and audio cassette recorder, large-print handouts, or a magnifier to use with handouts of regular-size print.

2. When discussing Information sheets:

a. Check with the student so that there will be no difficulty with hearing what is said.

b. Use concrete examples or demonstrations for the abstract terms or steps.

c. Allow the handicapped student to touch and explore materials and equipment that are being discussed.

d. Explain how similar parts or processes can be distinguished by touch or sound.

B. Activity Sheets and Unit Test

1. If necessary, encourage the student to work independently because the more independence a visually handicapped person can achieve, the more that student will be accepted by others in the class.

2. Allow the student to complete Activity sheets and the Unit Test by furnishing handouts in large print.

3. Have the student complete Activity Sheet 1 in regular print, with the aid of a magnifying glass. The purpose of this activity is to give the student practical experience that is similar to the way it might be handled in an actual job setting.

IV. Answers to Activity sheets and Unit Test

A. Grade the student on the same standards that are used with regular students.

B. If visual impairment is the only disability the student has, there should be no difference in intelligence and potential for educational achievement between the sighted and the visually handicapped.

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SPECIAL EQUIPMENT FOR THE VISUALLY IMPAIRED STUDENT

Light probe

Communicator and telecommunication devices

Large-print video terminal

Calcu-Tec calculator

Electronic visual aids

OPTACON (Optical to Tactile Concerter) print reading system

Orator talking terminal

Talking Keypunch and card reader

Braille Device Model BO-3

Thermoform Brailon Duplicator

IBM audio typing unit

Braille keyboard typewriter

Talking word processing system

RESOURCES FOR INFORMATION ABOUT VISUAL IMPAIRMENTS

American Foundation for the Blind, Inc.
15 West 16th Street
New York, NY 10011

American Printing House for the Blind, Inc.
1839 Frankfort Avenue
Louisville, KY 40206

Association for the Education of the
Visually Handicapped
919 Walnut Street
Philadelphia, PA 19107

National Braille Association
85 Godwin Avenue
Midland Park, NJ 08432

National Federation of the Blind
1800 Johnson Street
Baltimore, MD 21230

Recordings for the Blind, Inc.
499 West Charleston Road
Palo Alto, CA 94306

Rehabilitation Services Administration
Office for the Blind and Visually Handicapped
303 C Street, SW
Washington, DC 20201

The State Department of Vocational Rehabilitation
and Bureau of Services for the Blind in the state

APPENDIXES

APPENDIX A

READING LEVEL FORMULA*

Step 1 Count off at least 100 words in a group of sentences. Then divide the total number of words by the number of sentences. This gives the average sentence length of the passage.

Step 2 Count the number of words of three syllables or more per 100 words. Don't count words that are: (a) capitalized, (b) combination of short words (such as "typewriter" and "bookkeeper") and (c) verb forms made into three syllables by adding -ed or -es (like "created" or "trespasses"). This gives you the percentage of hard words in the passage.

Step 3 Total the two factors just counted and multiply by 0.4. This gives you the reading grade level.

SAMPLE

	Words
Parts of a stencil.	4
Stencil sheet--a thin, durable sheet with a special coating	14
that prevents the ink from flowing through the stencil.	23
Material or illustrations are typed or drawn on this sheet.	33
Cushion sheet--a waxed insert sheet which cushions the blows	43
of the typewriter to keep the stencil sheet from tearing.	53
Backing sheet--a hard sheet used to smooth over any lumps	64
or ridges that may be in the platen of the typewriter, to	76
provide a quality cut.	80
Typing film--a transparent film placed on top of the stencil	91
sheet to provide bolder copies, keep the typewriter or	100
elements clean, and protect the stencil sheet.	107

Step 1 107 words / 6 sentences = 17.8 (6/107.0)

Step 2 17 8 words per sentence

5 3-syllable words

Step 3 17.8 + 5 = 22.8; 22.8 x 0.4 = 9.52

9.5 reading grade level

*Adapted from the Fogg Index

APPENDIX B

RESOURCE MATERIALS

Vocational Entry Skills for Secondary Students
Winifred Washburn, 1977

Typing Key for Remediation of Reading and Spelling
Maetta Davis, 1977

both from Academic Therapy Publications
1539 Fourth St.
P.O. Box 899
San Rafael CA 94901

Fundamentals of Vocational Spelling
Merle W. Wood

Effective Listening
Evelyn Jenkins

both from Western Tape Co.
2661 Marine Way
P.O. Box 69
Mountain View CA 94942

MAINSTREAMING: With Special Emphasis on the Educable Mentally Retarded

MAINSTREAMING: What Teachers Say series

The Educable Mentally Retarded Student in the Secondary School

all three from NEA Order Department
Academic Building
Saw Mill Road
West Haven CT 06516

The Education of All Handicapped Children Act of 1975

Hearing Impaired Children in the Mainstream

MAINSTREAMING: Origins and Implications

all three from The Council for Exceptional Children
Publication Sales
1920 Association Drive
Reston VA 22091

APPENDIX C

ORGANIZATIONS

Alexander Graham Bell Assoc.
for the Deaf, Inc.
1537 35th Street, N.W.
Washington, D.C. 20007

American Foundation for the Blind
15 W. 16th Street
New York, NY 10011

American Speech and Hearing Assoc.
10801 Rockville Pike
Rockville, MD 20852

Arthritis Foundation
211 Park Avenue South
New York, NY 10003

Association for Children with
Learning Disabilities
4156 Library Road
Pittsburgh, PA 15234

Association for the Education
of the Visually Handicapped
919 Walnut Street
Philadelphia, PA 19107

The Association for the
Severely Handicapped
Information Department
1600 W. Armory Way
Seattle, WA 98119

Epilepsy Foundation of America
1828 L. Street, N.W.
Washington, DC 20036

Helen Keller National Center
for Deaf-Blind Youths and Adults
111 Middle Neck Road
Sands Point, NY 11050

Texas Rehabilitation Commission
118 E. Riverside Drive
Austin, TX 78704

Library of Congress
Division for the Blind and
Physically Handicapped
Washington, DC 20542

Mainstream, Inc.
1200 15th Street, NW
Washington, DC 20005

Muscular Dystrophy Assoc.
of America, Inc.
810 Seventh Avenue
New York, NY 10019

National Assoc. for Retarded Citizens
2709 Avenue E East
Arlington, TX 76011

National Braille Assoc.
85 Godwin Ave.
Midland Park, NJ 08432

National Easter Seal Society
2023 W. Ogden Avenue
Chicago, IL 60612

National Multiple Sclerosis Society
205 E. 42nd Street
New York, NY 10017

Office of Special Education and
Rehabilitative Services
Department of Education
400 Maryland Avenue, SW
Washington, DC 20202

APPENDIX D

ARTICLES

"Job-Readying the Special-Needs Student"
Business Education World, No. 50, p. 6-7
January/February, 1970

"Action Through Application--Teaching Typewriting to the Handicapped"
James C. Bell
Ohio Business Teacher, No. 35, pp. 48-49
March, 1975

"Clerical Training for Special-Needs Students"
Gail T. Hodges
Business Education World, No. 50, pp. 2-3
December, 1969

"Cooperative Office Education and the Low-Average Student"
Charlotte Lee
Balance Sheet, No. 50, pp. 204-205
January, 1969

"Two Motivators for the Mentally Retarded: Adding Machines, Typewriters"
. Kohler and J. E. McNally, Jr.
Instructor, No. 77, p. 42
July, 1968

"The Slow Learner: Does Your Methodology Fit His Need?"
James C. Matthews
Balance Sheet, No. 58, pp. 118-119
November, 1976

"Principles of Teaching the Physically Handicapped Individual
with Implications for Teaching Typewriting"
Catherine Samelson
California Business Education Journal, No. 10, pp. 11-13
October, 1974

"Methods and Techniques used in Teaching of Typewriting to the Slow Learner"
Jacqueline B. Shropshire
Master's thesis
North Carolina Central University, 1974

"Intensive Office Training for Handicapped Students"
ickie S. Weaver
hio Business Teacher, No. 34, pp. 84-86
March 1974

APPENDIX E

SPECIAL EQUIPMENT AND TOOLS

EQUIPMENT	PURPOSE	SOURCE
Brush or Pen Holder	Used to assist person with limited grasping ability to hold a writing or drawing implement.	West Texas Rehabilitation Center 4601 Hartford Abilene TX 79605
Light Probe	Used by visually impaired person to indicate brightness of a light source when operating key telephones or switchboards.	Oregon Chapter #31 Telephone Pioneers of America 421 S.W. Oak St., Room 114 Portland OR 97204
Sound Probe	Used by hearing impaired person when speaking on the telephone.	same as above
Canon Communicator	Used by persons with limited movement or inability to speak to communicate.	Telesensory Systems, Inc. 3408 Hillview Ave. Palo Alto CA 94304
Telephone Arms	Used by persons who experience difficulty in holding a telephone receiver.	Sparr Telephone Arm Co. P.O. Box 143 Allamuchy NJ 07820
Special Telephone Equipment	Special devices and equipment for use by handicapped persons.	Contact a local Bell telephone system
Communicator and Telecommunication Devices	Devices used to assist hearing and speech impaired persons to communicate by phone.	Specialized Systems, Inc. 11558 Sorrento Valley Road Building 7 San Diego CA 92121
Computer Programmer Station	Modified keyboard enables operator with inability to degress more than one key concurrently to use single key stroke method.	Clinical Convenience Products 2070 Helena St. Madison WI 53704
Large Print Video Terminal	Enables visually impaired user to select print size and color to be displayed on CRT screen.	ARTS Systems, Inc. 80 Boylston St. Suite 1260 Boston MA 02116
Transcription Unit	Enables the user to operate a transcription unit with a hand control.	Rehabilitation Engineering Center 2021 N. Old Manor Wichita KS 67208
Slow-speed Card Reader & Cassette Recorder	Used by persons with difficulty in reading and/or in retaining information. Information can be simultaneiously seen, read, and heard with this unit.	VOXCOM Division of Tapecon, Inc. 100 Clover Green Peachtree City GA 30269
File Tray	Modified file tray enables persons with limited movement and control to file and retreive papers.	Extensions for Independence P.O. Box 3754 Downy CA 90242
Calculator Guide	Used by persons with limited hand dexterity and control. Enables the person to accurately press the intended keys.	Office and Marketing Education Department WITI-New Richmond Campus 1019 South Knowles Ave. New Richmond WI 54017
Calcu-Tac Calculator	An electronic calculator with a braille printout.	Science for the Blind Products Box 385 Wayne PA 19087

EQUIPMENT	PURPOSE	SOURCE
Canon Electronic Calculator	Provides a visual printout and display, a voice synthesizer which reads out data.	Canon, U.S.A., Inc., Head Office 10 Nevada Drive, Lake Success Long Island NY 11042
Light Probe	Used by visually impaired when typing and magnify print and/or images.	San Francisco Lighthouse for 745 Buchanan St. San Francisco CA 94102
Electronic Visual Aids Model 2C	Used by visually impaired persons to magnify print and/or images.	Apollo Electronic Visual Aids 6357 Arizona Circle Los Angeles CA 90045
Aptacon Print Reading System	Enables a blind person to read printed materials with the aid of this machine.	Telesensory Systems, Inc. 3408 Hillview Ave. Palo Alto CA 94304
Page Turners	Used by persons with manipulation difficulty	Maddak, Inc. Pequannock NJ 07440
Mouthstick Operable	Used by quadriplegic employees in data processing.	Woodrow Wilson Rehabilitation Ctr. Rehabilitation Engineering Dept. Fishersville VA 22939
The Orator Talking Terminal	Used by the visually impaired. Enables the computer to speak its input or output in synthetic speech.	ARTS Computer Products 80 Boylston St., Suite 1260 Boston MA 02116
Talking Keypunch and Card-reader	Used by the visually impaired. Unit reads punched-cards and speaks what has been read or will tell what has been keyed.	M. P. Beddoes Dept. of Electrical Engineering University of British Columbia Vancouver, BC Canada V6T 1W5
Typing and Computer Interface	Operates as an accessory to the CU-IT MCB wheelchair control system which provides an interface with a computer or to accomplish typing and other data entry operations. Used by persons with limited movement control.	Romich, Beery and Bayer, Inc. RD 2, Box 191 Shreve OH 44676
Electronic Scanning Machine, Model #1100	Enables persons with limited hand control to operate equipment.	Gestetner Corporation Gestetner Park Yonkers NY 10703
Braille Device Model BD-3	Used by visually impaired to produce braille when used in conjunction with a keyboard, digital equipment, computer, etc.	Triformation Systems 3132 S.E. Jay St. Stuart FL 33494
Offset Press Model 319	Enables persons with limited hand control to operate equipment.	Gestetner Corporation Gestetner Park Yonkers NY 10703
Plate Processor Model M60	Enables persons with limited hand control to operate equipment.	Gestetner Corporation Gestetner Park Yonkers NY 10703
Stencil Duplicator Model 460	Enables persons with limited hand control to operate equipment.	Gestetner Corporation Gestetner Park Yonkers NY 10703
Thermoform Brailon Duplicator	Used to reproduce braille and embossed material.	American Thermoform Corporation 8640 East Slauson Ave. Pico Rivera CA 90660

EQUIPMENT	PURPOSE	SOURCE
Electric Typewriter	Used by persons with limited hand and arm muscle control. Equipped with a continuous feed paper attachment; paper cutter; cushioned arm rest and keyboard mask for guiding fingers to proper keys.	Olympia U.S.A., Inc. Route 22 Somerville NJ 08876
IBM Audio Typing Unit	Unit enables blind persons to proof typed material without assistance from a sighted person.	(local office) Office Products Division IBM Corporation
Braille Keyboard Typewriter	Equipped with Braille keyboard.	Olympia U.S.A., Inc. Route 22 Somerville NJ 08876
Talking Word Processing System	Enables visually impaired persons to proof, correct, and edit text.	Maryland Computer Services 502 Rock Spring Ave. Bel Air MD 21014
Touch-N-Type Stick	Used to operate typewriters, telephones, and computer keyboards if user has limited finger muscle control or loss of hand.	Therafin Corporation 3800 S. Union Ave. Steger IL 60475
Typewriter Control Systems	Adapts typewriter for persons who are unable to use typewriter in conventional manner.	Possum, Inc. P.O. Box 451 Midwood Station Brooklyn NY 11230
Typewriter Guard	Used by persons with limited hand dexterity and control as a guide to strike the correct key.	Office & Marketing Education Dept. WITI-New Richmond Campus 1019 S. Knowles Ave. New Richmond, WI 54017
Typewriter for one hand, with shield	Enables one-hand typist to operate a typewriter.	Typewriting Institute for the Handicapped 3102 W. Augusta Ave. Phoenix AZ 85021
Twin-turntable desk	Designed for persons who have difficulty in reaching and moving books, typewriters, and office machines.	Extensions for Independence P.O. Box 3754 Downey CA 90242

IMPART

INNOVATIVE MATCHING OF PROBLEMS TO AVAILABLE REHABILITATION TECHNOLOGY

IMPART, a project implemented through a 5-year grant from the National Institute on Handicapped Research, finds solutions for the many rehabilitation problems that are encountered. IMPART maintains contact with resources throughout the nation, including Rehabilitation Engineering Centers, the Technology Utilization Division of NASA, the Veterans' Administration Rehabilitation Engineering Center (VAREC), and various rehabilitation hospitals and organizations for the disabled.

In addition, IMPART maintains an extensive information file which contains various program activity reports, assistive device catalogs, directories, brochures, newsletters from various organizations, and much more.

Problem Areas Served by IMPART

The problems referred to **IMPART** come from people representing approximately 80 different disability groups. The disability categories most frequently referred to **IMPART** are cerebral palsy, paraplegia, quadriplegia, vision and hearing impairments. The following are some of the assistive devices and designs which **IMPART** has matched to needs of those disabled persons:

COMMUNICATION
- amplification devices
- telephone equipment
- braille/braille writing
- typewriting
- reading aids
- non-vocal communication aids
- special signaling devices (primarily for the deaf and blind)
- tactile conversion devices
- command/control units
- recording equipment
- low vision aids

HOME MANAGEMENT & ADAPTION
- kitchen design
- bathroom design
- transfer capabilities

MOBILITY
- wheelchairs
- wheelchair accessories
- walkers
- orthotics and prosthetics
- lifts, transfers and elevators
- stabilization or positioning aids
- personal vehicles (unlicensed)
- mobility aids for visually impaired

VOCATIONAL
- equipment, tool and work site modifications
- training and education

FURNITURE
- desks
- chairs

DAILY LIVING
- eating, drinking and feeding aids
- toilet aids
- dressing and clothing aids
- sleeping
- attendant care
- reaching and lifting devices
- bath lifts and chairs

TRANSPORTATION
- automobile hand or foot controls
- adapted vans
- transfers and lifts
- personal vehicles (licensed)
- buses, minibuses and ambucabs

MEDICAL/THERAPY
- catheters
- heart rate monitors
- pressure relieving cushions

RECREATION
- swimming pool lifts
- sound-generating balls
- outdoor mobility equipment
- sports wheelchairs

IMPART Demonstrations

IMPART has a wide variety of equipment, ranging from very simple writing aids to computers for disabled persons, which is available for demonstration. Some is available for trial use both within and outside the center. Videotapes of equipment demonstrations also are available. A partial list of devices available follows. For more information, contact IMPART, Texas Rehabilitation Commission, 118 East Riverside Drive, Austin, TX 78704, or phone (512) 445-8000.

Communication

NON-VOCAL AIDS

Express 1 • Elkomi • Handivoice 110 • Handivoice 120 • Canon Communicator • Alphabet Message Scanner • Zygo 16 • Matrix Communicator • Possum Communicator • Possum Expanded Keyboard System • Video Com II Communicator • Lapboard Strip Printer • Sharp Electronics Memo Writer • Adaptive Therapeutics Communicator • Various Pointers, Mouthsticks, & Headsticks

TELEPHONE AIDS

Prentke Romich Automatic Dialing Telephone • Duofone Cordless Telephone • Duofone Automatic Dialing Telephone • Micro-Dec Automatic Dialing System • Gooseneck Extension Arm and Various Other Receiver Holders

AIDS FOR HEARING IMPAIRED

VIP (TDD) • The Pocket Phone (TDD) • Micon (TDD) • MCM (TDD) • Hal-HEN Portable Alarm-Alert • Porta-Tel (TDD) • See-Tone Communicator (TDD) Vibralite Baby Cry Alert • Williams PA Broadcasting System

AIDS FOR VISUALLY IMPAIRED

Homer Alerting Device • Print Identifier & Light Detector • Visualtek Read/Write System Variable Speech Control Module • Various Hand-Held Magnifiers

OTHER

Large Selection of Writing Aids • Several Page Turners • Bookholders • Voice Amplification Devices

Mobility

WHEELCHAIRS

Amigo • Voyager • Med-Quad Wheelchair System • SOLO Wheelchair Power Kit • LEVO Stand-up Wheelchair • A-BEC Portable Electric Wheelchair • Stainless Deluxe Sports Wheelchair • Summit Mainstream Wheelchair • Various Lapboards and Carrying Bags

LIFTING & POSITIONING - AIDS

Portable Ramp • Castor Portable Standing Frame • Nolan Powered Bath Lift • Wheel-O-Vator Porch Lift • Handi-Trak Portable Ramp Channels

Vocational

TI Calculator w/Print out • Speech Plus Talking Calculator • Heyer Turntable Desk • IBM Selectric Typewriter with Adaptations • MKD Cash Register w/Remote Keyboard • Craig Transcription/Dictation Equipment • Work Bench & Shop Tools • Possum Expanded Typewriter Keyboard • Bernina Sewing Machine • Prehensile Hand • BSR Environmental Control System • Micro-Dec Environmental Control System • Apple II Plus Micro-Computer with Heuristics Voice Recognition System • Adjustable Wheelchair Worktable

Daily Living

Large Selection of Reachers • Large Selection of Utensil Holders • Large Selection of Writing Aids • Combs • Hairbrushs • Bathbrushs with Various Straps • Handles for Various Dressing Aids

Medical/Therapy

ROHO Cushion • PRAD II Pressure Alarm • Exersentry Heart Rate Monitor • Airstream Purifying Helmet